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EXAMINER	
MOORE, IAN N	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/646,617	NARAYANAN ET AL.	
	Examiner	Art Unit	
	Ian N. Moore	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 November 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11-6-2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings (FIG. 2-4) were received on 11-6-07. These drawings are accepted by the examiner.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1-4, 17-20, and 33** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,2,4-6,19,20,22-24,35,36,39 and 40 of copending Application No. 10/642,042 (hereinafter refers to Narayana). Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-4,17-20 and 33 of the instant application merely broadens the scope of the

claims 1,2,4-6,19,20,22-24,35,36,39 and 40 of Narayana by eliminating the elements and their functions of the claims as set forth below.

Claim 1 of the instant application recites, a method for managing connections in a network comprising (see Narayana, claim 1, line 1-2, claim 36, line 1-2):

receiving a packet associated with a request for a protocol-based connection (see Narayana, claim 1, line 3, claim 36, line 3);

assigning the packet to a selected one of a plurality of classes (see Narayana claim 1, line 4-5, claim 36, line 4-5);

forwarding the packet if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see Narayana claim 1, line 6-9, claim 36, line 8-10); and

dropping the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 1, lines 11-12, claim 36, line 11-12).

Claim 2 of the instant application recites, wherein the first maximum count is adjustable to effectuate different rates of packet forwarding for the selected class (see Narayana claim 6).

Claim 3 of the instant application recites, wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see Narayana claim 2 and 4).

Claim 4 of the instant application recites, wherein a counter associated with the selected class is used to determine whether number of packets forwarded from the selected class

in the predetermined time interval has reached the first maximum count (see Narayana claim 1 and 5).

Claim 17 of the instant application recites, an apparatus for managing connections in a network comprising (see Narayana claim 19, line 1-2, claim 39, line 1-2):

a control plane operable to process requests for protocol-based connection (see Narayana claim 19, line 15-17); and

a data plane operative to receive a packet associated with a request for a protocol-based connection (see Narayana claim 19, line 4-6, claim 19, line 3),

assign the packet to a selected one of a plurality of classes (see Narayana claim 19, line 6-7, claim 39, line 5-7),

forward the packet to the control plane if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see Narayana claim 19, line 9-11, claim 39, line 12-14), and

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 19, line 12-14, claim 39).

Claim 18 of the instant application recites, wherein the first maximum count is adjustable to effectuate different rates of packet forwarding for the selected class (see Narayana claim 24).

Claim 19 of the instant application recites, wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see Narayana claim 20 and 22).

Claim 20 of the instant application recites, wherein a counter associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 19 and 23).

Claim 33 of the instant application recites, a system for managing connections in a network (see Narayana claim 35 and 40) comprising:

means for receiving a packet associated with a request for a protocol-based connection (see Narayana claim 35 and 40);

means for assigning the packet to a selected one of a plurality of classes (see Narayana claim 35 and 40);

means for forwarding the packet if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see Narayana claim 35 and 40); and

means for dropping the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 35 and 40).

It has been held that the omission an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184 (CCPA). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd.App.1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art. Moreover, the doctrine of double patenting seeks to prevent the unjustified extension of patent exclusivity beyond the term of a patent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 17 and 33 rejected under 35 U.S.C. 102(e) as being anticipated by Archilles (US006977894B1) (*recited by IDS filed 11-6-07 after non-final action mailed on 5-27-07*).

Regarding Claims 1, 17 and 33, Archilles discloses an apparatus or system (see FIG. 1, L3 apparatus) processing a method (see FIG. 4a,5, method) for managing connections in a network (see FIG. 1, control/managing routing/forwarding in a computer network; see col. 1, line 20-30; see col. 2, line 65-67) comprising:

a control plane (see FIG. 1, a combined system of Router Switch processor CXP 127 and DMA controller 135) operative to process requests for protocol-based connection (see FIG. 1, processes packets that request for routing/forwarding for Layer 3 protocol (L3) connection; see col. 3, line 1-30); and

a data plane (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) operative to receive a packet

for a protocol-based connection (see FIG. 1, receiving packet that request for routing/forwarding for L3 connection; see col. 3, line 1-30),

assign the packet to a selected one of a plurality of classes (see FIG. 1, classifying each packet to one internal service classes (ISC) of ISCs; see col. 4, line 5 to col. 5, line 65),

forward the packet to the control plane (see FIG. 1, forward the packets to a combined system of CXP 127 and DMA 135) to if the number of packets forwarded from the selected class (see FIG. 1, when the number of packets from the ISC class) in a predetermined time interval (see FIG. 1, 4A, 5, within watermark traffic rate/time or threshold ICR rate/time; note that rate is defined as number/time packets per time, and thus when comparing to watermark rate); see col. 3, line 30 to col. 5, line 65) has not reached a first maximum count (see FIG. 1, 4A, S 411; FIG. 5, S 507 with No; see col. 3, line 30 to col. 5, line 65; forwarding the packets when the number of packets within the of the watermark traffic time/rate rate or threshold ICR time/rate has not exceed);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 1, 4A, S 409; FIG. 5, S 509; see col. 3, line 30 to col. 5, line 65; drop the packets when the number/count of packets within the watermark traffic time/rate rate or threshold ICR time/rate has not exceed).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 11-13, 15, 17, 19, 27-29, 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson (US006577596B1) in view of Valencia (US006754712B1).

Regarding Claims 1, 17 and 33, Olsson discloses an apparatus or system (see FIG. 2, node 200, see FIG. 3, node 300, or see FIG. 6, node 600) processing a method (see FIG. 2,3,6, node processes a steps/method) for managing connections in a network (see FIG. 2,3,6, control routing/forwarding in a exemplary PPP/IP network; see col. 5, line 66 to col. 6, line 10; see col. 7, line 46-67) comprising:

a control plane (see FIG. 2,3,6, processor means 231, or 530; see col. 6, line 65 to col. 7, line 16, 30-34) operative to process protocol-based connection (see FIG. 6, PPP 620 or HDLC 530, processor processes PPP/HDLC connection packets; see col. 7, line 35-40,60-67; see col. 8, line 60-65); and

a data plane (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP layer/plane 620 and HDLC layer/plane) operative to receive a packet for a protocol-based connection (see FIG. 2, receiving packet 211/212/213 at node 200/300/600 for PPP/IP connection; see FIG. 3, receiving Packet 315-318 at node 200/300/600 for PPP/IP for connection; see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49),

assign the packet to a selected one of a plurality of classes (see FIG. 2, 3, 6, different QoS classification queues D1-D4, or $D1.D_N$, where D1 is for high QoS classification packets, and D_N

is lower QoS classification packets; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50),

forward the packet to the control plane (see FIG. 6, forward the packets from D_N queues to data link layer/plane 530) to if the number of packets forwarded from the selected class (see FIG. 6, when packets each D1.D_N QoS class) in a predetermined time interval (see FIG. 2,3,6, within scheduled/allocated time; see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-40) has not reached a first maximum count (see FIG. 2,3,6, the size of queue; see col. 11, line 44-46; forwarding the packets when the specific QoS class queue D_N is yet filled with packets);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 2,3,6, discarding the packets when the specific QoS class queue D_N in the scheduled/allocated time is full (i.e. reaching maximum packet number/count); see col. 11, line 35-55).

Olsson does not explicitly disclose "requests and associated with a request".

However, to a packet associated with a request for a protocol-based connection and process requests for protocol-based connection is so well known and established in the art as disclosed by various PPP RFC standards such as 1332,1332,1661,1662 (see www.faqs.org/rfcs/). In particular, Valencia teaches a control plane (see FIG. 3, a processor in the home gateway 20; see col. 4, line 34-25) operable to process requests for protocol-based connection (see col. 4, line 30-50; processing PPP request for PPP connection); and

a data plane (see FIG. 3, input/output of the gateway 20) operable to receive a packet associated with a request for a protocol-based connection (see FIG. 3,5, PPP setup packet to

initiate PPP session; see col. 5, line 1-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide receiving requests and associated with a request a protocol-based connection, as taught by Valencia in the system of Olsson, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claims 3 and 19, Olsson discloses wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see col. 9, line 1-2; col. 12, line 30-40; scheduling time is adaptable to rate control of packet forwarding from a specific QoS class).

Regarding Claims 13 and 29, Olsson discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see FIG. 6, PPP 620; see col. 7, line 35-40,60-67; see col. 8, line 60-65; PPP connection). Valencia also discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see col. 4, line 30-50; see col. 5, line 1-65; PPP connection).

Regarding Claims 15 and 31, Valencia discloses wherein the protocol-based connection is based on a Layer Two Tunneling Protocol (L2TP) (see col. 2, line 1-2, 57-60; see col. 4, line 15-20; layer 2 forwarding tunnels protocol).

8. Claims 2 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Valencia, and further in view of Kroll (US006700895B1)

Regarding Claims 2 and 18, Olsson discloses wherein the first maximum count effectuates different rates of packet forwarding for the selected class (see FIG. 2,3,6, the size of

each specific QoS class queue D_N effects/results different rates for forwarding high and low QoS classes of packets; see col. 11, line 44-46).

Neither Olsson nor Valencia explicitly discloses "adjustable".

However, adjusting queues or buffer size/length for different rates is so well known in the art. In particular, Kroll teaches wherein the first maximum count is adjustable to effectuate different rates of packet forwarding (see FIG. 6, S194, 196; the buffer size is increased/adjusted to accommodate/effects more counts of packet so that more/higher data rate with desired loss rate can be processed; see col. 7, line 10-24).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide adjustable first maximum count, as taught by Kroll in the combined system of Olsson and Valencia, so that it would provide an optimal buffer size; see Kroll col. 2, line 30-55.

9. Claim 4,5,20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Valencia as applied to claim 1 and 17 above, and further in view of Kim (US005859846A).

Regarding Claims 4 and 20, Olsson discloses scheduling means associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-4; scheduling means determines the specific QoS class queue in the scheduled time/interval is full/reach maximum count).

Neither Olsson nor Valencia explicitly discloses "a counter".

However, having a counter for the buffer or queue is so well known in the art. In particular, Kim discloses a counter 9see FIG. 5, UP/Down counter 27) associated with the selected class (see FIG. 5, Shared buffer 28) is used to determine whether number of packets forwarded from the selected class has reached the first maximum count (see col. 13, line 21-45; a counter associated with a shared buffer is used to determined whether the number of cells forwarded from the buffer (i.e. determining full/maximum number of cells in the buffer)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a counter, as taught by Kim, in the combined system of Olsson and Valencia, so that it would count the number of cells stored/output from the buffer; see Kim col. 16, line 22-27.

Regarding Claims 5 and 21, Kim discloses the counter is a count-down counter (see FIG. 5, Down counter 27; see col. 13, line 21-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a count-down counter, as taught by Kim, in the combined system of Olsson and Valencia, so that it would count the number of cells stored/output from the buffer; see Kim col. 16, line 22-27.

10. Claim 6, 8, 9,10,22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Valencia as applied to claim 1 and 17 above, and further in view of Choudhury (US006092115A).

Regarding Claims 6 and 22, Olsson discloses wherein the packet is forwarded only if a count of active connection has not reached a maximum limit as set forth above in claim 1 and 17.

Valencia discloses a count of active connection requests (see col. 4, line 30-50; a number/count of PPP requests).

Neither Olsson nor Valencia explicitly discloses "a second maximum limit".

However, buffer or queue having an overflow bandwidth or borrowed space having another/second size/threshold to accommodate the extra packets is so well known in the art. Choudhury discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 2, the packet is forward when a count/number of active packets has not reach the limit/size/threshold of underutilized queue 30c; see col. 4, line 1-15.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Choudhury, in the combined system of Olsson and Valencia, so that it would provide fair queuing schemes; see Choudhury col. 2, line 44-60.

Regarding Claim 8 and 24, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46). Valencia discloses the count of active connection requests for establishment a protocol-based connection (see col. 4, line 10-27, 40-43; see col. 5, line 55-65; see col. 6, line 60-65; see col. 7, line 10-12, 30-35; sending PPP connection requests for establishing PPP connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide establishing connection, as taught by Valencia, in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

Choudhury also discloses the count of active connection packets are decremented in the queue due to forwarding packets when a connection is established (see col. 9, line 2-9).

Thus, the combine system of Olsson, Valencia and Choudhury discloses the claimed invention.

Regarding Claims 9 and 25, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46). Valencia discloses the count of active connection requests when a protocol-based connection is terminated before being established (see col. 5, line 5-30,55-65; see col. 6, line 15-30; see col. 7, line 58-60; PPP connation requests and termination/disconnection before establishing PPP connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide termination/disconnection before establishing the connection, as taught by Valencia, in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

Choudhury also discloses the count of active connection packets are decremented in the queue due to forwarding packets when a connection is terminated (see col. 9, line 2-9).

Thus, the combine system of Olsson, Valencia and Choudhury discloses the claimed invention.

Regarding Claims 10 and 26, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose "requests and forwarding even if the first maximum count has been reached".

However, Valencia teaches requests as set forth above in claim 1. Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide requests and forwarding even if the first maximum count has been reached, as taught by Valencia in the system of Olsson, so that it would provide layer two

forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claims 11 and 27, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the additional packet relates to status of the requested protocol-based connection, as taught by Valencia in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

Regarding Claims 12 and 28, Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the additional packet relates to termination of the requested protocol-based connection, as taught by Valencia in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

11. Claim 6,7,22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Valencia as applied to claim 1 and 17 above, and further in view of Suzuki (US005140584A).

Regarding Claims 6 and 22, Olsson discloses wherein the packet is forwarded only if a count of active connection has not reached a maximum limit as set forth above in claim 1 and 17. Valencia discloses a count of active connection requests (see col. 4, line 30-50; a number/count of PPP requests).

Neither Olsson nor Valencia explicitly discloses "a second maximum limit".

However, buffer or queue having second maximum threshed/limit count is so well known in the art. Suzuki discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 3, comparing the packet according secondary Thresholds, Thr2-Thr4, before forwarding the packets; see col. 4, line 25-64; see col. 8, line 1-5,50-60).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Suzuki, in the combined system of Olsson and Valencia, so that it would obtain a transmission quality which has high instantaneousness; see Suzuki col. 2, line 40-45.

Regarding Claims 7 and 23, Olsson discloses wherein the count of active connection is increment when the packet is forwarded to the selected class (see FIG. 6, when number/count of active packets is forwarded to the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is increment/increased; see col. 11, line 44-46). Valencia discloses Valencia discloses the count of active connection requests is forwarded (see col. 4, line 10-27, 40-43; see col. 5, line 55-65; see col. 6, line 60-65; see col. 7, line 10-12, 30-35; counts/number of active PPP connection requests for PPP connection is forwarded).

Suzuki further discloses the count of active connection packet is incremented when a packet is forwarded (see FIG. 3, counter 5 is incremented when a packet for a connection is forwarded; see col. 7, line 50-55).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the count of active connection packet is incremented when the packet is forwarded, as taught by Valencia, in the system of Olsson, for the same motivation as set forth above in claim 6.

Regarding Claims 10 and 26, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose "requests and forwarding even if the first maximum count has been reached".

However, Valencia teaches requests as set forth above in claim 1. Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and

the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide requests and forwarding even if the first maximum count has been reached, as taught by Valencia in the system of Olsson, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claims 11 and 27, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the additional packet relates to status of the requested protocol-based connection, as taught by Valencia in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

Regarding Claims 12 and 28, Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the additional packet relates to termination of the requested

protocol-based connection, as taught by Valencia in the system of Olsson, for the same motivation as set forth above in claim 1 and 17.

12. Claims 14,16,30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Valencia as applied to claims 1 and 17 above, and further in view of Xiong (US006958996B2)

Regarding Claims 14 and 30, the combined system of Olsson and Valencia discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (see Olsson FIG. 6, PPP 620; see col. 7, line 35-40,60-67; see col. 8, line 60-65; PPP connection; see Valencia col. 4, line 30-50; see col. 5, line 1-65; PPP connection).

Neither Olsson nor Valencia explicitly discloses a Point-to-Point Protocol over Ethernet (PPPoE).

However, utilizing PPPoE is so well known in the art. In particular, Xiong teaches wherein the protocol-based connection is based on a Point-to-Point Protocol over Ethernet (PPPoE) (see FIG. 6, PPPoE request; see col. 2, line 52-60; see col. 5, line 44-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide PPPoE, as taught by Xiong in the combined system of Olsson and Valencia, so that it would enable a client for communication with ISP over the internet; see Xiong col. 2, line 54-65.

Regarding Claims 16 and 32, the combined system of Olsson and Valencia discloses wherein the protocol-based connection as set forth above in claims 1 and 17.

Neither Olsson nor Valencia explicitly discloses a Dynamic Host Configuration Protocol (DHCP).

However, utilizing DHCP is so well known in the art. In particular, Xiong teaches wherein the protocol-based connection is based on a Dynamic Host Configuration Protocol (DHCP) (see FIG. 6, DHCP request; see col. 2, line 40-60; see col. 5, line 10-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide DHCP, as taught by Xiong in the combined system of Olsson and Valencia, so that it would enable a client for communication with ISP over the internet by utilizing appropriate address; see Xiong col. 2, line 40-45.

Response to Arguments

13. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection in view of IDS submitted by the applicant. Also, applicant's arguments filed 11-6-2007, regarding the old ground of rejection, have been fully considered but they are not persuasive.

Regarding provisional non-statuary double patenting rejection, the applicant recites "applicants acknowledges the non-statutory obviousness type double patenting rejections and will determine whether to file a terminal disclosure at the appropriate time" in page 10.

In response, the examiner acknowledges the remark and acknowledgment, according the provisional non-statuary double patenting rejection is sustained.

Regarding claims 1-33, the applicant argued that, "...Olsson does not teach or suggest forwarding/dropping a packet according to a number of packets forwarded in a predetermined

time interval...Valencia also fails to disclose forwarding/dropping a packet according to a number of packets forwarded in a predetermined time interval ...Valencia's sequence count is not related to a maximum count of packets forwarded in a predetermined time interval...the combination of Olsson and Valencia fails to teach or suggest each and every claim element and thus fails to render the claimed invention obvious..." in pages 10-13.

In response to applicant's argument, the examiner respectfully disagrees with the argument above since the combined system of Olsson and Valencia clearly discloses the applicant invention.

Olsson discloses forward the packet to the control plane (see FIG. 6, forward the packets from D_N queues to data link layer/plane 530) to if the number of packets forwarded from the selected class (see FIG. 6, when packets each D1.D_N QoS class) in a predetermined time interval (see FIG. 2,3,6, within scheduled/allocated time; see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-40) has not reached a first maximum count (see FIG. 2,3,6, the size of queue; see col. 11, line 44-46; forwarding the packets when the specific QoS class queue D_N is yet filled with packets);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 2,3,6, discarding the packets when the specific QoS class queue D_N in the scheduled/allocated time is full (i.e. reaching maximum packet number/count); see col. 11, line 35-55).

Thus, it is clear the decision to forwarded/discard a packet is according to the number of packets each D1. D_N QoS class within a "scheduled/allocated" time. Even applicant acknowledges Olsson discourse's of the claimed invention (in the argument page 11, paragraph

2) by citing Olsson col. 11, lines 45-55, which states "if the queue associated with the priority or classification is full (i.e. maximum count of packets in the queue, e.g. the size of queue), the packet may be discarded by the scheduling process (i.e. predetermined schedule/allocated time) ..." (*assertion added*).

Since Olsson has already disclosed the claimed invention Valencia is not required to recite the argued limitation.

Regarding claims 10 and 26, the applicant argued that, "Olsson in view of Valencia does not teach or suggest the further claim limitations directed to a pass-through class. Specifically, Olsson in view of Valencia does not teach or suggest at least "assigning the additional packet to a pass-through class: and forwarding the additional packet even if the first maximum count **or** the second maximum count has been reached...the combination of Olsson and Valencia based upon these additional limitations" in page 12-13.

In response to applicant's argument, the examiner respectfully disagrees with argument above.

First, the claimed invention in claims 10 and 26 recites "the first maximum count **or** the second maximum count". Thus, examiner is only required to show either "the first maximum count" **or** "the second maximum count", not both.

Olsson discloses assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and forwarding the additional packet according to the first maximum count (see FIG. 2,3,6,

forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

In view of the above, it is clear that the combined system of Olsson and Valencia disclosed "the assigning the additional packet to a pass-through class: and forwarding the additional packet even if the first maximum count has been reached".

Although it is not required, "the buffer or queue having an overflow bandwidth or borrowed space having another/second size/threshold to accommodate the extra packets" is so well known in the art as evident by Choudhury. Choudhury discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 2, the packet is forward when a count/number of active packets has not reach the limit/size/threshold of underutilized queue 30c; see col. 4, line 1-15.

Again, in view of the above, the combined system of Olsson, Valencia and Choudhury discloses the broadly claimed well known invention.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- **Henriques** (US 20030198183A1) discloses determining packets discarding or forwarding decision based on time and counter.
- **Tsuchiya** (US005978844A) discloses determining packets discarding or forwarding decision based on examining of packet.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12-6-07

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